Energy Codes and Electrical System Reliability

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Codes and Electrical System Reliability

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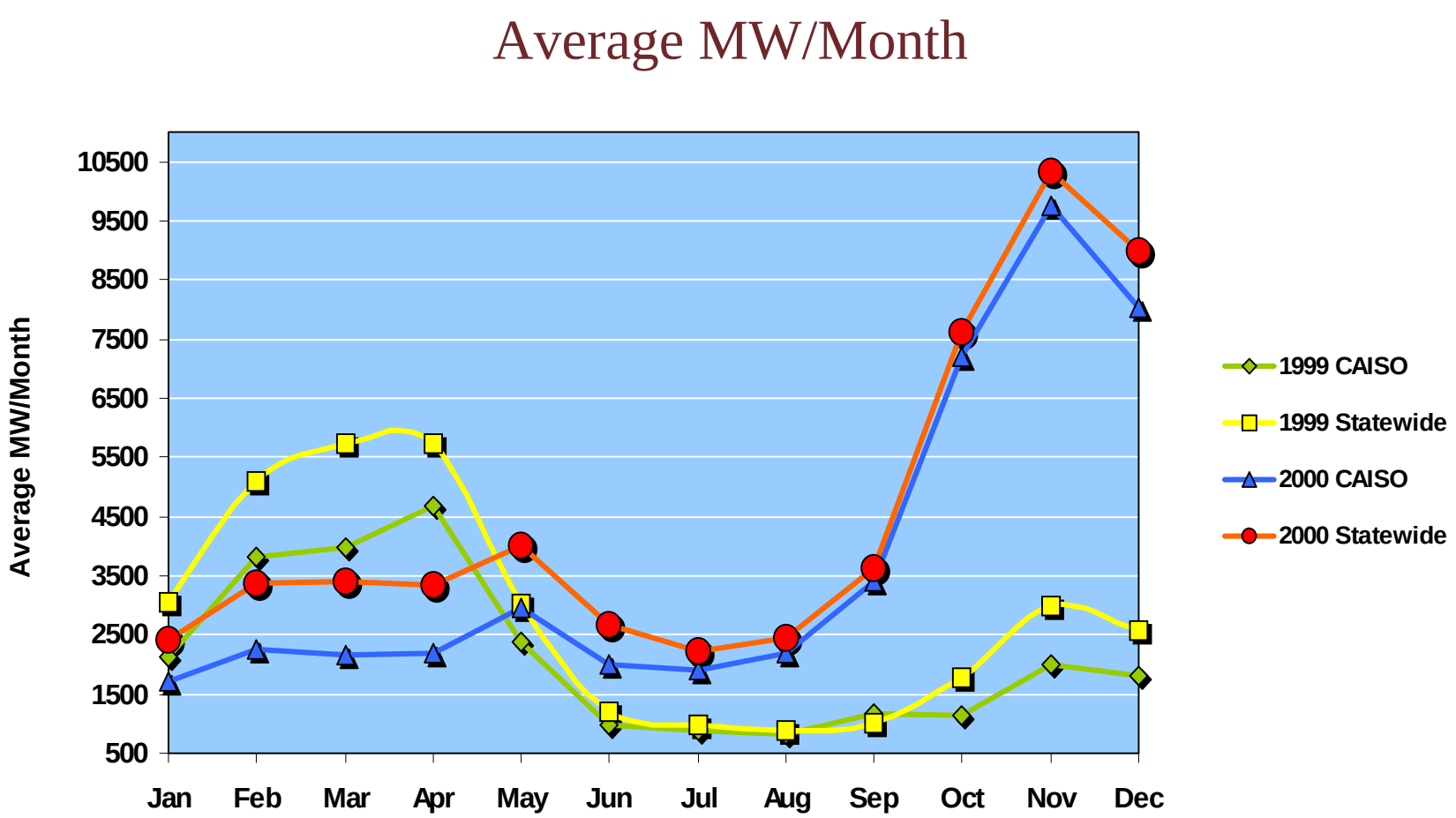
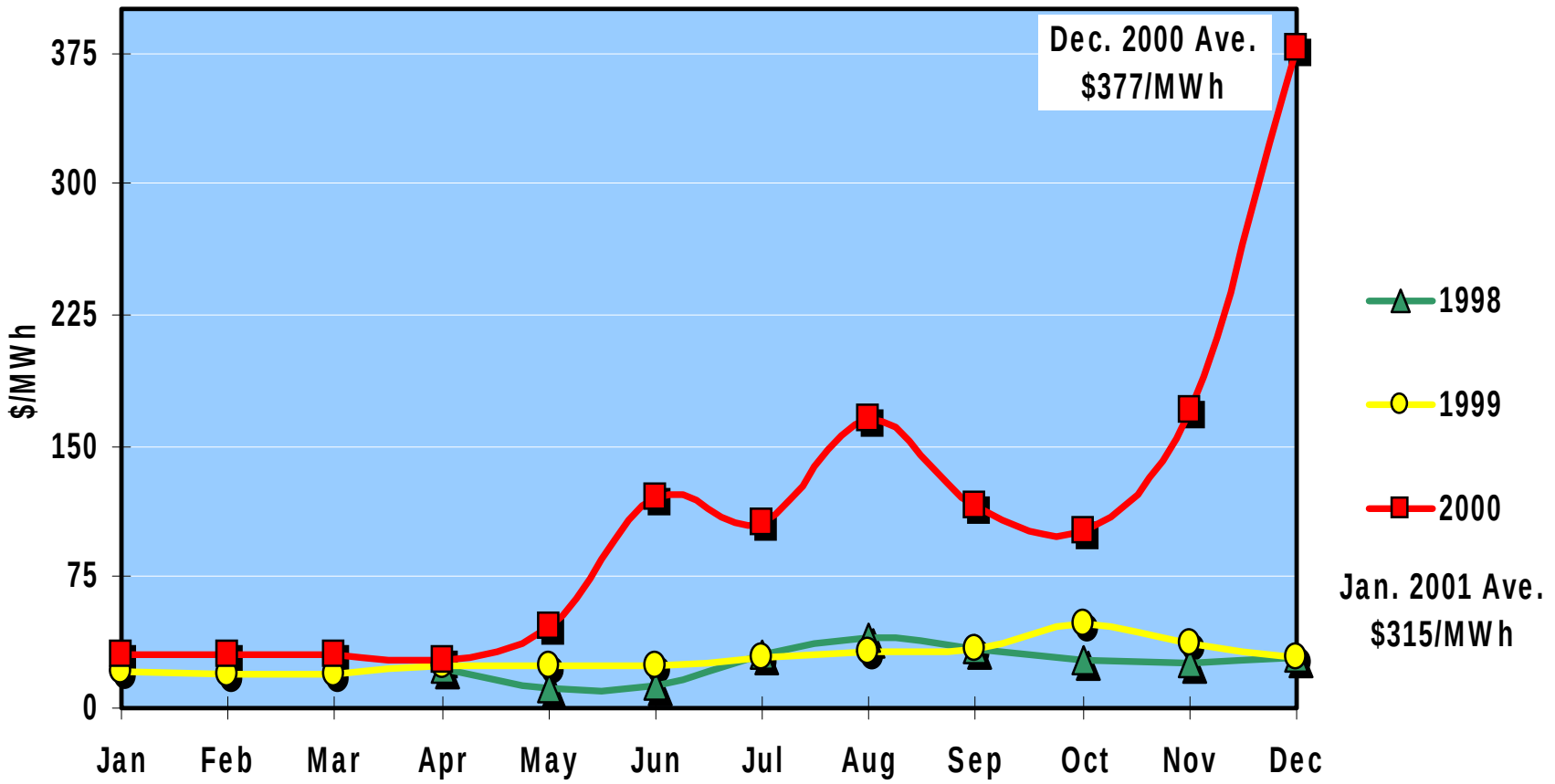
  - Tight Ducts
  - Bi-level Switching

Historical Generation Outages



Monthly Average Clearing Price



Supply/Demand Mix

	Apr	May	June	July	August	September
California Statewide Peak Demand + 7% Operating Reserve*	**44,016**	**46,247**	**57,462**	**61,125**	**61,125**	**61,125**
* Demand forecast reduced by 200 MW due to savings from CPUC PGC Programs						
Existing Resources	57,433	57,770	59,545	59,538	59,216	59,226
Forced & Planned Outages as of Mar. 23rd	**(10,093)**	**(10,093)**				
SONGS Outage	(1,109)	(1,109)	(1,109)			
Estimated QF Capacity Off-Line	**(3,000)**	**(3,000)**	**(3,000)**			
Allowance for Forced & Planned Outages			(3,050)	(3,050)	(3,050)	(3,050)
Existing Resources Available to Meet Load	**43,230**	**43,567**	**52,386**	**56,488**	**56,166**	**56,176**
Resource Surplus/Deficit	**(786)**	**(2,680)**	**(5,076)**	**(4,637)**	**(4,959)**	**(4,949)**
Generation Additions (Summer Dependable MW)						
Increase Output from Existing Power Plants	67	112	426	944	956	956
Accelerate Construction of Approved Power Plants	44	44	44	1,047	1,332	1,332
Develop New Power Plants	13	29	378	1,040	1,928	2,630
Total	**124**	**185**	**848**	**3,031**	**4,216**	**4,918**
Resource Surplus/Deficit	**(662)**	**(2,495)**	**(4,228)**	**(1,607)**	**(743)**	**(32)**
New Conservation - Demand Response Programs						
CPUC Summer Peak Initiative (Public Goods Charge)			67	67	67	67
CEC AB 970 (Efficiency/Demand Responsive Systems)		10	299	323	374	374
SB5X and AB 29x (Efficiency/Demand Reduction Programs)			362	1,245	1,574	2,061
ISO Summer Demand Relief Program			596	596	596	596
ISO Round 2 DRP (Bids due May 1st)						
ISO Discretionary Load Curtailment Program						
CPUC Interruptible Tariff Program						
20/20 Program						
Voluntary Load Reductions Local, State, Fed. Government	658	658	658	658	658	658
Total	658	668	1,982	2,889	3,269	3,756
Resource Surplus/Deficit	**(4)**	**(1,827)**	**(2,247)**	**1,282**	**2,526**	**3,725**

Rate Impacts

Average Electric Utility Rates by Sector for Western States Year-to-Date, November 2000 (cents/kWh)

	Residential	Commercial	Industrial
California	**10.5**	**9.1**	**5.3**
Arizona	8.5	7.4	5.1
New Mexico	8.3	7.0	4.8
Colorado	7.5	5.7	4.5
Nevada	7.2	6.7	4.9
Wyoming	6.6	5.4	3.4
Montana	6.3	5.8	2.9
Utah	6.3	5.2	3.3
Oregon	5.9	5.1	3.4
Idaho	5.4	4.2	3.1
Washington	5.2	4.9	3.5

Source: Energy Information Administration, Form EIA-826, "Monthly Electric Utility Sales and Revenue Reports with State Distributions."

April 1, 2001 (cents/kWh)

	Residential	Small Commercial	Medium Commercial	Industrial	Agricultural
PG&E	13.2	14.7	10.6	7.9	14.2
Edison	13.9	13.9	10.7	9.1	11.0
SDG&E	13.6	13.8	13.8	12.0	13.4

April rates do not reflect the average 3¢/kWh rate increase adopted in D.01-03-082 (March 27, 2001). Rate design for this increase is expected to be adopted in June.

Why Energy Efficiency?

- Directly reduces peak end use loads
- Dispatched automatically
- Reduces customer and utility costs
- Pollution free
- Readily available
- Strong deployment capability

Assembly Bill 970

- Empowered CA Energy Commission to:
  - Adopt new building standards
  - Adopt new appliance regulations
  - 120 days to complete full rulemaking
- Participants
  - CEC Staff
    - Eley Associates
  - Pacific Gas and Electric Company
    - New Buildings Institute, Inc.
- Goal
  - 200 MW avoided demand /yr

Results

	1st Year Impacts			Ten Year Impacts		
	gWh	MW	M therms	gWh	MW	M therms
Residential	131	199	0.80	5,891	1,793	27
Nonresidential	63	41	0.65	3,414	279	36
Appliances	217	76	6.50	1,240	605	166
Totals	**411**	**315**	**810**	**10,544**	**2,677**	**230**

CASE Studies

- **Dry-type Transformers**
  - No standard -- new standard for low-voltage transformers proposed based on EPA EnergyStar specification
- **Tight Ducts**
  - Required duct leakage testing with less than 6% leakage to receive “tight duct” credit (mandatory in base package).
- **Bi-level Switching**
  - Modified requirements to require bi-level switching to eliminate exemption for occupant sensor or time switch control

Dry-type Transformers

1st Year Impacts			Ten Year Impacts		
gWh	MW	M therms	gWh	MW	M therms
27	3	0	296	33	0

Tight Ducts

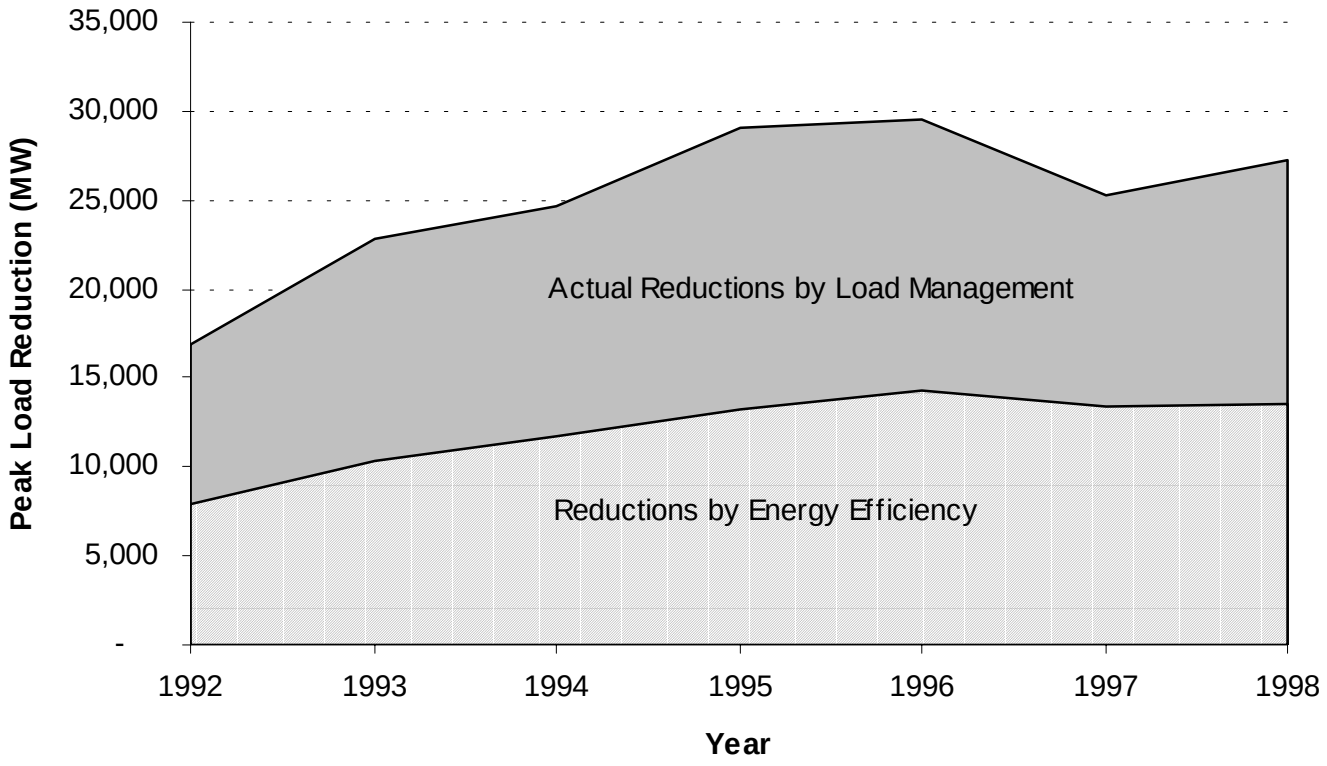
1st Year Impacts			Ten Year Impacts		
gWh	MW	M therms	gWh	MW	M therms
27	82	1.4	1,203	737	67

Bi-Level Switching

1st Year Impacts			Ten Year Impacts		
gWh	MW	M therms	gWh	MW	M therms
5.8	1.3	0	320	12	-1.0

Conclusion

Load Management and Efficiency - 1992 to 1998



Source - ACEEE